

REMARKS

Claims 1-5, 8-14, and 16-20 are pending in the present case. Claims 12, 17, and 20 were withdrawn from consideration. Claims 1, 5, 9, 14, and 16 are amended herein. Applicants respectfully request reconsideration in view of the above amendments to the present application, and the arguments set forth below. No new matter is added herein.

OBJECTIONS TO THE SPECIFICATION

The disclosure is amended herein to correct informalities. Applicant respectfully asserts that, as amended herein, the brief description of the drawings is acceptable. Applicant respectfully requests the Examiner's review and approval.

The specification is amended herein to further describe claimed subject matter, depicted in the original drawing figures. Further, a replacement sheet, marked accordingly, is attached hereto for Figure 3, wherein the elements --318-- and --319,-- described in the original specification, are added. Applicant respectfully requests the Examiner's review and approval.

CLAIM REJECTIONS

35 USC 112

Claims 5 and 16 are rejected under 35 USC 112. Claims 5 and 16 are amended herein to read as follows, with underlining added for emphasis.

5. The device as recited in Claim 4 wherein said fins are oriented in an aspect comprising a substantially obtuse angle from each said flow stream.

16. The method as recited in Claim 14, wherein said fins are oriented in an aspect comprising a substantially obtuse angle from each said flow stream.

Further, the specification is amended herein to further describe the claimed subject matter, as depicted in the original drawing Figure 3. The paragraph beginning on line 16 at page 12 is re-written herein to read as follows, with underlining added for emphasis:

As flow stream 316 impinges fins 215 and flows through the spaces between them, its direction is mechanically changed. Warmed flow stream 319 thus emerges from fins 315 in a direction different from the original flow direction of flow stream 316. Likewise, as flow stream 317 impinges fins 315 and flows through the spaces between them, its direction is mechanically changed also. Warmed flow stream 318 thus emerges from fins 315 in a direction different from the original approach direction of flow stream 318. As is shown in Figure 3, fins 315 are, in the present embodiment, oriented in an aspect comprising a substantially obtuse angle (e.g., 135 degrees, etc.) from each flow stream. As with the fins shown in Figures 2 and 4, the spaces between fins 315 are shown in Figure 3 to be substantially even.

As amended herein, Applicants respectfully assert that Claims 5 and 16 are allowable under 35 USC 112.

35 USC 103

Claims 1-5, 8-11, 13-14, 16, and 18-19 are rejected under 35 USC 103(a) over US Patent No. 6,313,399 to Suntio, et al. (hereinafter Suntio). Applicants have reviewed the Suntio reference and respectfully assert that it does not teach or suggest the embodiments of the present invention recited in Claims 1-5, 8-11, 13-14, 16, and 18-19 for the following rationale.

Suntio and the embodiments recited in Claims 1-5, 8-11, 13-14, 16, and 18-19 herein differ. As Applicants understand the reference, Suntio teaches a cooling element for an unevenly distributed heat load. Suntio, col. 1, ll. 5-8. To cool the unevenly distributed heat load, Suntio expressly teaches a device wherein the "spaces between the [cooling] ribs [i.e., fins] are not even, ..." Suntio, col. 2, ll. 45-

55, emphasis added. The device with uneven spaces between cooling fins taught by Suntio differs from the embodiments recited in Claims 1-5, 8-11, 13-14, 16, and 18-19.

As amended herein, Claim 1 reads as follows, with underlining added herein for reference.

1. A device for removing heat from an electronic component, comprising:
 - a heat sink adapted to couple to said electronic component and conduct heat therefrom; and
 - an appurtenance having fins, coupled to said heat sink and adapted to transfer said heat into a fluid medium, wherein said fins are oriented at an angle with respect to a plurality of flow streams of said fluid medium across said fins, wherein the space between said fins is substantially even, and wherein each flow stream of said plurality follows a unique direction.

Independent Claims 9 and 14 are amended in a similar way with Claim 1. Claims 2-5 and 8, Claims 11 and 13, and Claims 16 and 18-19 respectively depend upon independent Claims 1, 9, and 14 and incorporate their respective elements.

As amended herein, Claims 1, 9, and 14 recite a substantially even space between the fins of a heat sink's finned appurtenance, as shown in the original drawing figures. A substantially even space between the fins of a heat sink's finned appurtenance, as recited in Claims 1, 9, and 14, provides benefits related to streamlining the air flow across the heat sink, which can provide more effective heat transfer. Further benefits can be realized, which relate to manufacturing simplicity and concomitant cost savings, e.g., with forming, casting, forging, brazing, etc. the finned appurtenance.

Applicant finds no teaching or suggestion within the Suntio reference directed towards a substantially even space between the fins of a heat sink's finned appurtenance, as recited in Claims 1, 9, and 14. To establish obviousness, the references cited must each teach or suggest every claimed element. Here however, Applicant respectfully asserts that the elements recited in Claims 1-5, 8-11, 13-14, 16, and 18-19 are not taught or suggested by the reference. Thus, Applicant respectfully asserts that the reference does not suggest the embodiment recited in these Claims.

Moreover, the Suntio reference expressly directs its teaching towards heat sinks having uneven spaces, (Id.) in contrast to a substantially even space between the fins of a heat sink's finned appurtenance, as recited in Claims 1, 9, and 14 herein. In teaching heat sinks having uneven spaces, Applicants respectfully assert that Suntio expressly teaches away from embodiments recited in Claims 1, 9, and 14, which recites a substantially even space between the fins of a heat sink's finned appurtenance.

Finding no teaching or suggestion in the Suntio reference directed towards each and every element recited in Claims 1, 9, and 14, and with the reference expressly teaching away from embodiments recited in these claims, Applicants respectfully assert that these embodiments are not suggested by the reference. Thus, Applicants respectfully assert that Claims 1-5, 8-11, 13-14, 16, and 18-19 are allowable under 35 USC 103(a).

CONCLUSION

Applicants respectfully assert that Claims 5 and 16 are allowable under 35 USC 112. By the rationale stated above, Applicants further respectfully assert that the reference cited does not teach or suggest embodiments of the present invention as recited in Claims 1, 9, and 14, as amended herein, and their respective dependent Claims and are thus allowable under 35 USC 103.

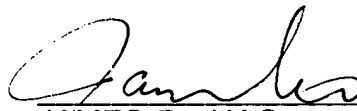
Accordingly, Applicant respectfully request that the rejection of Claims 5 and 6 under 35 USC 112 (first paragraph) and of Claims 1-5, 8-11, 13-14, 16, and 18-19 under 35 USC 103(a) be withdrawn and that Claims 1-5, 8-11, 13-14, 16, and 18-19 be allowed.

Please charge our deposit account No. 23-0085, for any unpaid fees.

Respectfully submitted,

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